

a circuit component connected between said terminal and said first source of constant voltage; and

a protection circuit disposed adjacent to at least said one of said active areas, and comprising:

B' a first impurity region of said one conductivity type disposed adjacent to said at least one of said active areas, wherein said first impurity region is a base region of a bipolar transistor,

a second impurity region of a second conductivity type opposite to said one conductivity type disposed adjacent to said first impurity region, connected to said terminal, wherein said second impurity region is one of an emitter region or a collector region of said bipolar transistor; and

a third impurity region of said other conductivity type connected to said first source of constant voltage, wherein said third impurity region is the other of said emitter region or said collector region of said bipolar transistor.

2. (*Twice Amended*) The semiconductor device as set forth in claim 1, wherein said third impurity region further comprises:

a first impurity sub-region disposed in a surface portion of another active area adjacent to said one of said active areas; and

a second impurity sub-region contiguous to a bottom surface of said first impurity sub-region and extending in said first impurity region under said second impurity region.

3. (*Twice Amended*) The semiconductor device as set forth in claim 2, wherein said first impurity sub-region comprises:

Sub 7
C2
B1
a first portion contiguous to said second impurity sub-region; and
a second portion heavier in dopant concentration than said first portion and connected to said first source of constant voltage.

4. (*Twice Amended*) The semiconductor device as set forth in claim 2, wherein said circuit component is a field effect transistor comprising source and drain regions of said other conductivity type disposed in said one of said active areas, and one of said source and drain regions is said second impurity region.

5. (*Twice Amended*) The semiconductor device as set forth in claim 1, wherein said third impurity region comprises:

a first impurity sub-region disposed in another surface portion of said first impurity region spaced from said second impurity region; and

a second impurity sub-region contiguous to a bottom surface of said first impurity sub-region and extending in said first impurity region under said second impurity region.

6. (*Twice Amended*) The semiconductor device as set forth in claim 5, wherein said first impurity sub-region comprises:

Sub 7
C3
a first portion contiguous to said second impurity sub-region; and

a second portion heavier in dopant concentration than said first portion and connected to said first source of constant voltage.

B' 7. (*Twice Amended*) The semiconductor device as set forth in claim 5, wherein said circuit component is a field effect transistor comprising source and drain regions disposed in said one of said active areas, wherein one of said source and drain regions is said second impurity region, and the other of said source and drain regions is said first impurity sub-region.

8. (*Twice Amended*) The semiconductor device as set forth in claim 1, wherein said third impurity region is disposed in another active area adjacent to said one of said active areas and having a second depth greater than said first depth.

9. (*Twice Amended*) The semiconductor device as set forth in claim 8, wherein said circuit component is a field effect transistor comprising source and drain regions disposed in said one of said active areas, and one of said source and drain regions is said second impurity region.

10. (*Twice Amended*) The semiconductor device as set forth in claim 1, wherein said third impurity region is disposed in another surface portion of said first impurity region and deeper than said second impurity region.

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11. (*Twice Amended*) The semiconductor device as set forth in claim 10, wherein said circuit component is a field effect transistor comprising source and drain regions disposed in said one of said active areas, one of said source and drain regions is said second impurity region, and the other of said source and drain region is a part of said third impurity region.

B'
12. (*Twice Amended*) The semiconductor device as set forth in claim 1, wherein said third impurity region extends in said first impurity region under said second impurity region.

13. (*Twice Amended*) The semiconductor device as set forth in claim 10, wherein said circuit component is a field effect transistor comprising source and drain regions disposed in said one of said active areas, and one of said source and drain regions is said second impurity region.

Sub 1
C4
14. (*Twice Amended*) The semiconductor device as set forth in claim 1, wherein said terminal is a signal output terminal, and said circuit component is an output transistor.

15. (*Twice Amended*) The semiconductor device as set forth in claim 1, wherein said terminal is a signal input and output terminal, and said circuit component is an output transistor comprising a portion of an input and output circuit connected to said terminal.

B2
Sub C57

17. (Amended) A semiconductor device comprising:

- a semiconductor substrate of a first conductivity type;
- a plurality of active areas disposed in a portion of said semiconductor substrate;
- at least one shallow trench isolation region disposed between said active areas;
- a terminal connected to one of said active areas;
- a first source of constant voltage connected to another of said active areas;
- a circuit component connected between said terminal and said first source of constant voltage; and
- a protection circuit disposed adjacent to at least said one of said active areas, said protection circuit comprising:
 - a first impurity region of said first conductivity type disposed adjacent to at least one of said active areas and serving as a base region of a bipolar transistor,
 - a second impurity region of a second conductivity type opposite to said first conductivity type disposed in said active area connected to said terminal, and serving as one of an emitter region or a collector region of said bipolar transistor; and
 - a third impurity region of said second conductivity type connected to said first source of constant voltage, disposed in another portion of said semiconductor substrate and serving as the other of said emitter region or said collector region of said bipolar transistor.

18. (Amended) The semiconductor device as set forth in claim 17, wherein said circuit component is a field effect transistor.

19. (*Amended*) The semiconductor device as set forth in claim 17, wherein said third impurity region further comprises:

a first impurity sub-region disposed in a surface portion of an active area adjacent to said at least one shallow trench isolation region; and

B2 a second impurity sub-region contiguous to a bottom surface of said first impurity sub-region.

20. (*Amended*) The semiconductor device as set forth in claim 18, wherein said first impurity sub-region comprises a first portion contiguous to said second impurity sub-region.

Sub 67
21. (*Amended*) The semiconductor device as set forth in claim 20, wherein said first impurity sub-region further comprises a second portion heavier in dopant concentration than said first portion and connected to said first source of constant voltage.

22. (*Amended*) The semiconductor device as set forth in claim 17, wherein said at least one shallow trench isolation region has a first depth and said third impurity region has a second depth greater than said first depth.

23. (*Amended*) The semiconductor device as set forth in claim 17, wherein the depth of said third impurity region is deeper than the depth of said second impurity region.

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24. (*Amended*) The semiconductor device as set forth in claim 17, wherein said third impurity region extends into said first impurity region under said second impurity region.

25. (*Amended*) The semiconductor device as set forth in claim 17, wherein an upper surface of said third impurity region is contiguous with a bottom surface of said first impurity region.

26. (*Amended*) The semiconductor device as set forth in claim 17, wherein said first impurity

B2 region is a p-type impurity region.

27. (*Amended*) The semiconductor device as set forth in claim 17, wherein said second impurity region is a n-type impurity region.

28. (*Amended*) The semiconductor device as set forth in claim 17, wherein said third impurity region is a n-type impurity region.

29. (*Amended*) The semiconductor device as set forth in claim 17, wherein said terminal is a signal output terminal and said ~~circuit~~ component is an output transistor.

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B2 30. (*Amended*) The semiconductor device as set forth in claim 17, wherein said terminal is a signal input and output terminal, and said circuit component is an output transistor comprising a portion of an input and output circuit connected to said terminal.
